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COMPLETE SPECIFICATION

A new or improved Material for Destroying Rodents and Method
of making the same

We, Dr. JOACHIM FREYBERG and Dr. WERNER FREYBERG, both German citizens, sole proprietors of ERNST FREYBERG CHEMISCHE FABRIK DELITIA, 5 of Delitzsch, Sachsen, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following 10 statement:—

In the preparation of means for combatting animal pests or vermin, especially rodents, the selection of the carrier or bait material, which is charged with the 15 actual poison, is of especial importance. In such poison baits, the nature of the bait material which is to serve as the luring foodstuff is of greater importance than the quality of the exterminating 20 poison itself. In the case of the combatting of rodents the selection is of particular importance, since in the first place these animals are very suspicious, and in the second place, when there is a 25 slight excess of nourishment, they are very dainty.

One of the best known baits is cereal grain, and this is much used in the form of poisoned wheat and the like. Nevertheless cereal grain cannot be regarded 30 as an ideal baiting material. First of all, the individual grains of cereals have a smooth husk which renders the penetration of liquid poisons into the interior of 35 the grain difficult or impossible. If, however, an attempt is made to apply the poison externally of the grain only, another difficulty arises. As is known, cereal grains do not swell uniformly on 40 all sides on account of their morphological structure. When using such poisoned grains, however, it is impossible to avoid a swelling thereof, since frequently—considering for instance the combatting of 45 field mice—they are placed in the open. The resultant un-uniform swelling of the grain readily bursts the outer poison crust and also the colouring material which has to be present for identification 50 purposes, so that the object of the preparation of the bait is to a large extent frustrated. In addition, in many cases

cereal grain is not a particularly desirable food for the pests. Experience teaches that in corn fields themselves the 55 damage by mice is particularly severe, and it is obvious that in such instances a poisoned grain does not represent a particularly luring food for the animals, in view of the excess of un-poisoned grain. 60 The germs must moreover be destroyed in the cereal grain to be used as the pest exterminator, in order to prevent the diffusion of the uneaten poisoned grain amongst the untreated seed grain, which 65 in general is of a different nature. Thus this grain does not germinate and for this reason also is less pleasant to eat than germinating grain in which the starch has undergone a partial saccharification, owing to the action of the enzymes formed by the germs, and which therefore has a more or less sweet taste. In addition to all this, it is desirable 70 that grain should be conserved as far as 75 possible, and thus the employment of valuable seed grain and corn for bread for the purpose of making poisonous preparations cannot be defended.

Fresh carrots, celery and the like have 80 also been previously proposed for use as bait. These materials are of course excluded from use in the industrial preparation of pest-combatting media since they are not durable, transportable, and 85 cannot be mechanically dosed.

Now according to this invention we provide a method of making a toxic bait for the extermination of rodents, characterised in that sugar beet is dried and 90 pulverized, treated with a liquid poisonous material, e.g. a solution of a poison, and the whole dried. The pulverized, dried sugar beet is employed 95 as a carrier for the poison, and this material has the advantage of being capable of storage for a practically unlimited period. With a moisture content which can vary within wide limits, namely between 8 and about 15%, it 100 represents a durable material which is distinguished by an extraordinarily high sugar content of an average of 50—70%. As a consequence of this unusually satis-

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factory composition, the means according to the invention is an extraordinarily desirable and tasty morsel for the pests, since it is a material to which nature offers no similar composition to animals, and will thus be preferred.

The bait material made according to the invention avidly absorbs liquid poisons of all kinds, or solutions thereof. In the absence of the semi-permeable covering layer which normally surrounds all cereal grain, the poisons straightaway penetrate deeply into the interior of the bait. Thus the use of the novel bait makes the production of poisoned preparations considerably easier than is the case with the usual cereal grains. When preparations are to be made using aqueous solutions, the sugar beet can first of all be pulverized, then saturated with the aqueous poison solution, and finally dried.

On the other hand the novel material is also eminently suitable for the production of vermin-combatting material in which the poison is merely situated on the surface of the bait. The new material has the advantage over cereal grain that it swells uniformly on all sides when treated with moisture, as a result of its amorphous structure, whereby a flaking off of the poison and coloured crust is prevented.

The better adhesion of the poison to the material prepared by this invention than to smooth-husked cereal grain, as a result of the somewhat rougher surface of the new material, which also possesses a certain amount of adherence on account of the sugar sap content thereof, is very marked.

In many instances the sugar present on the surface will be sufficient to bind the poison. Special binding material could, in addition, be employed, especially if the poison has to have a coloured crust applied to the bait in conformity with legal provisions. Molasses, sugar syrup, meal—or starch—pastes, glue, artificial resin solutions, collodion, oils, especially drying or semi-drying oils such as hemp seed oil, sesame oil, and the like, are suitable for use as such binding agents. The use of water-impervious binding media has proven to be particularly advantageous.

An especial advantage is the surprising fact that the novel material can readily be broken up to any desired granular size. A predetermined uniform grain dimension is necessary, having regard to the widely-used poison-laying apparatus with which the poison bait is in practice laid down. The novel material can readily be broken up by means of simple

pulverizing devices, e.g. in roller mills, and brought to a predetermined unit granule size like cereal grain, by means of sieves. The resulting, by no means considerable, waste is not spoiled for use as fodder. The bait according to the invention is much cheaper than corn and renders the vermin or pest-destroying industry independent of this raw material which to-day is particularly expensive.

Practical tests have already shown the novel means to be outstanding. It is even an exterminant for voles, which the usual moist baits provided with poisons have not been capable of destroying.

Some examples may explain the invention more fully.

EXAMPLE 1.

50 gms. strychnine nitrate are dissolved in 5 litres of water, and 2 gms. of fuchsine added. 10 kgms. of pulverized, dried and granulated sugar beet of corn grain size are intimately mixed with this solution and the material dried until it has a moistened content of between 8 and 15%.

The medium prepared in this way is preferably adapted for combatting field mice and is storables for an unlimited period.

EXAMPLE 2.

The following preparation has proven suitable for the extermination of voles.

Small pieces of sugar beet, which for the present purpose advantageously should have a more root-like form, are impregnated with 3—10% of a binder (e.g. poppy seed oil or sesame oil), 3% zinc phosphide and about 5—10% red Kaolin is applied on the surface.

EXAMPLE 3.

The following preparation is preferably used to act against rats.

90% dried granular sugar beet is saturated with 10% tincture of squills extract. The material is dried till it has a moisture content of 8—15%.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A method of making a toxic bait for the extermination of rodents, characterised in that sugar beet is dried and pulverized, treated with a liquid poisonous material, e.g. a solution of a poison, and the whole dried.

2. A method according to claim 1, characterised in that the sugar beet is first broken up, then impregnated with aqueous solutions of a toxic material, and finally dried.

3. Method according to claim 1, char-

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acterised in that dried and pulverized sugar beet is superficially covered with a poison, which is optionally pulverized.

prepared by the method set forth in any of claims 1 to 4.

4. Method according to claim 3, characterised in that the poison is fixed by means of a binding medium, which may be waterproof.

Dated this 5th day of July, 1938.

FORRESTER, KETLEY & CO.,
Chartered Patent Agents,
Jessel Chambers, 88/90, Chancery Lane,
London, W.C.2, and
Central House,
75, New Street, Birmingham,
Agents for the Applicants.

5. A method of making toxic material for the destruction of rodents, substantially as herein described.

6. Means for destroying rodents when

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